



Desktop laser marker uses  
USB industrial camera for process optimisation

## Easy setup

Today, many machines and devices have integrated imaging processing systems that enhance process workflows and make them more user-friendly. In the case of materials processing in particular, cameras and suitable software solutions support the positioning of workpieces and tools, or perform tasks in the area of visual quality inspection.

USB industrial cameras from IDS are among the cameras used by ROFIN, the expert in laser material processing, in its desktop laser marking systems. As these systems are equipped with various cameras depending on specific user requirements, this systems manufacturer requires, above all, easy integration and exchangeability of models.

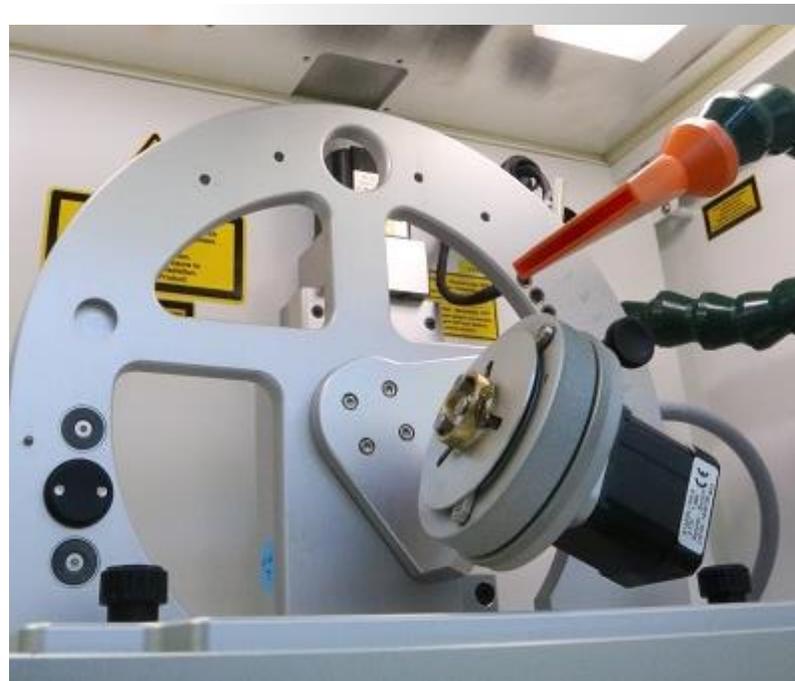
The IDS Software Suite makes this possible.

ROFIN-BAASEL Lasertech, which has its headquarters in Starnberg, Germany, develops and builds laser-supported systems for the processing of small and ultra-small parts, right down to the  $\mu\text{m}$  range. The workpieces are processed with the greatest precision and with minimal heat exposure, even with the hardest materials. The company is part of the international ROFIN Group, a technology and market leader in industrial laser materials processing. The Group has net sales well in excess of 500 million US dollars, and production sites in the US, Germany, Great Britain, Sweden, Finland, Switzerland, Singapore and China.

ROFIN-BAASEL's product range includes compact and mobile systems for laser cutting, welding and marking. The EasyMark desktop laser marker is a particularly compact system for the engraving of metal or plastic parts in DIN A4 format up to a height of 120 mm. The air-cooled laser beam sources, ranging in power from 10 to 50 W, are fully integrated into the system. To make the marking process as precise as possible while also avoiding the creation of scrap, ROFIN-BAASEL offers this system with a range of different camera solutions. In the basic variant, a 2 MP camera mounted laterally above the workpiece to be engraved supports manual workpiece positioning.



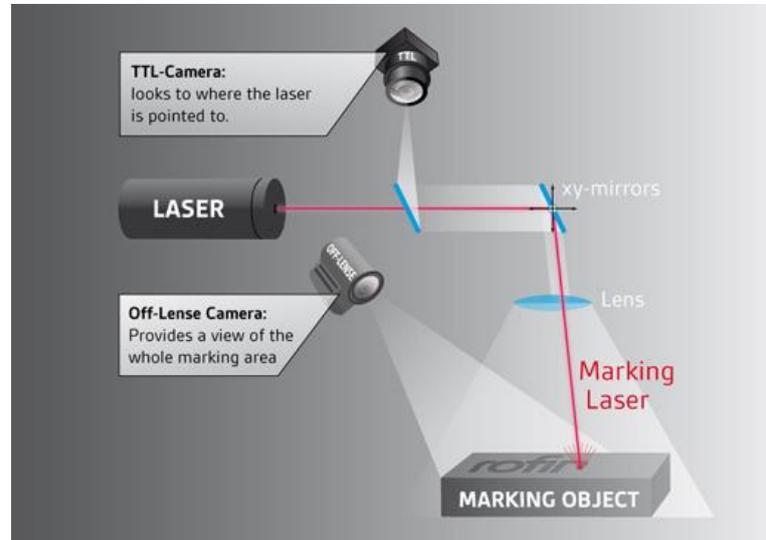
ROFIN EasyMark:  
The Versatile Desktop  
Laser Marker



Precise positioning of the workpiece

Customers also have the option of enhancing the basic variant with the ROFIN SmartView solution, which uses a 10 MP camera. In this variant, the camera captures an image of the workpiece, which is then displayed as a background in the engraving software. Against this background image, the information to be engraved can be easily oriented independently of the workpiece's position. This function is particularly useful for objects where the surface to be engraved cannot be defined using a positioning rectangle or, due to the material, a test engraving is not possible, for example, circular engravings on high-quality watch backs or engravings on coated workpieces. The camera's high resolution enables easy digital zooming on the image and precise adjustment of the engraving's layout. In addition, a relatively inexpensive lens with a fixed focal lens is sufficient, and a single optical configuration provides both an overview image and a pin-sharp detailed image.

ROFIN-BAASEL also offers the additional option of Through-the-Lens (TTL) technology. With this technology, a 10 MP camera "looks" through the deflection mirror and focusing lens along the laser's optical beam path. As a result, the camera captures all optical and electrical fluctuations in laser beam deflection and focusing in the system, and these are adjusted automatically when positioning the engraving layout using the camera image. This enables an extremely high degree of precision.



Through the Lense (TTL) technology: two cameras capture the optical path of the laser beam.

An industrial camera from the USB 2 uEye SE series from IDS is used in each of these system variants that can be selected by the customer. For over a decade, the models in this series have been proving themselves as robust and compact all-round industrial cameras. They are available with a wide range of CMOS and CCD sensors, and with a varied choice of housing variants. Thanks to its USB interface, any camera in this series is flexible, cost-efficient, and space-saving, as data is sent and power is supplied by a cable. The digital inputs and outputs for controlling the trigger and flash are optically decoupled and can process signals up to 30 V.

The cameras can be screw-mounted on all sides and can therefore be installed anywhere. A specially developed sensor seal provides protection in extremely dusty environments. The camera filter is also exchangeable and easy to clean. As well as the compact design and attractive price/performance ratio, the most important factor in ROFIN-BAASEL's decision to integrate these cameras into their systems was the software support provided by IDS. This made it very easy to integrate the camera into ROFIN's own Visual Laser Marker (VLM) engraving software and also enables simple model changes. The IDS software philosophy is based on a very simple formula. The IDS driver package not only gets the most out of the interface and the sensor. It is also identical across all models produced by the camera manufacturer – regardless of whether these have a USB 2.0, USB 3.0 or GigE Interface. With the IDS Software Suite, all cameras in the model range are therefore completely interchangeable without the slightest difficulty, even across different interfaces. For example, a USB 2.0 camera can be replaced with a more powerful model with a USB 3.0 or Gigabit Ethernet connection.

Mixed operation of cameras with different interfaces on a PC is also guaranteed. As all necessary drivers are loaded to the camera after it has been connected, functionality can be quickly and easily extended by software updates.

ROFIN-BAASEL already uses two different camera models in its EasyMark systems and, thanks to this philosophy, the company has flexible options open to it in future. If the system needs to be equipped with different camera variants to meet new customer requirements, the camera-specific parameters would simply have to be adjusted and the ROFIN application would not need to be re-programmed. As a result, it is particularly easy, time-saving and cost-efficient to switch between different cameras. Speaking of simplicity and time-saving... As part of the initial camera integrations, IDS also provided the OEM customer with support services, and delivered a ROFIN-specific configuration of the driver software. Wolfgang Illich, Product Manager at ROFIN-BAASEL in Starnberg, describes the benefits for his company as follows: "We were able to use the camera immediately, without having to deploy any of our own software engineering resources. This gave us a crucial time advantage in launching the product, and was a key factor in the purchase decision."



## USB 2 uEye SE:

All-round camera, broad sensor portfolio, many different versions, special sensor seal

Interface:	USB 2.0
Item number:	1490SE-C-HQ (1240SE-C-HQ)
Sensor type:	CMOS, color (both models)
Manufacturer:	Aptina (e2v)
Frame rate:	3,2 fps (25,8 fps)
Resolution:	3840 x 2748 (1280 x 1024)
Shutter:	RS (GS, RS, Global Start)
Opt. class:	1/2" (1/1.8")
Dimens. (mm):	ca. 34 x 32 x 41,3 (both models)
Weight:	ca. 65 g (both models)
Connectors:	USB 2.0 mini-B (screwable), I/O



Customer: <http://www.rofin.com>

### About ROFIN

With 40 years of experience in laser technology, ROFIN has successfully focused its strategy on being an innovative leader in the industrial laser market and has consistently demonstrated its determination to deliver the most powerful and innovative manufacturing tools to a wide range of industries. ROFIN's global outlook, which started very early on, combined with acquisitions of other companies, contributed to ROFIN's expansion efforts and is a key element of our corporate philosophy.

